Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date Due: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**TRUE OR FALSE**

**State whether each statement is true or false and briefly explain why. If the statement is false, try ti “fix” it by modifying the given statement to a new statement that is true.**

1. For a graph, you can compute the slope using any two points and get the same value.
2. All graphs must pass the vertical line test.
3. A cubic function has a graph with one local maximum and one local minimum.
4. If *f* is a trigonometric functions, then there is exactly one solution of the equation .
5. The period of the function is .
6. All quadratic functions have graphs that look like the parabola .

**In exercises 7 and 8, find the slope of the line through the given points.**

1. 8.

**In exercises 9 and 10, determine whether the lines are parallel, perpendicular, or neither.**

1. and
2. and
3. Determine whether the points and form the vertices of a right triangle.
4. The data represent populations at various times. Plot the points, discuss any patterns and predict the population at the next time: .
5. Find an equation of the line through the points indicated in the graph that follows and compute the *y*-coordinate corresponding to *x* = 4.



1. For , compute .

In exercises 15 and 16, find an equation through the line with the given slope and point.

1. 16.

In exercises 17 and 18, use the vertical line test to determine whether the curve is the graph of a function.



17. 18.

In exercises 19 and 20, find the domain of the given function.

1. 20.

In exercises 21-32, sketch a graph of the function showing extreme, intercepts and vertical asymptotes.

1. 22.



1. 24.



1. 26.



1. 28.



1. 30.



1. 32.



1. Determine all intercepts of . (Refer to the graph of #21)
2. Determine all intercepts of . (Refer to the graph of #23)
3. Determine all intercepts of . (Refer to the graph of #25)
4. Determine all intercepts of . (Refer to the graph of #26)

In exercises 37-40, find or estimate all zeros of the given function.

1. 38.
2. 40.

In exercises 41 and 42, determine the number of solutions.

1. 42.
2. A surveyor stands 50 feet from a telephone pole and measures an angle of to the top. How tall is the pole?
3. Find , given that and
4. Convert to fractional or root form:
5. Convert to exponential form:

In exercises 47 and 48, find and , and identify their respective domains.

1. , 48. ,

In exercises 49 and 50, identify the functions such that equals the given function.

1. 50.

In exercises 51 and 52, complete the square and explain how to transform the graph of into the graph of the given function.

1. 52.

In exercises 53 and 54, find all solutions of the equation.

1. 54.